WW ENGINEERING & SCIENCE
6660 Busch Blvd
Columbus, OH 43229
Phone (614) 847-6008
FAX (614) 847-5563

MEMORANDUM

DATE: December 22, 1993

TO: Ted Lietzke, WWES G.R. **CC:** Liz Bartz, WWES G.R.

FROM: Joe Montello JM

RE: Comments on Glenview Naval Air Station SI Report (project #4015.10)

This memo contains comments on the remaining portions of the SI report for the Glenview Naval Air Station (NAS) dated 8/11/93. Comments on sections previously reviewed were forwarded in a memos dated December 10 and December 20. This memo covers Sites 6, 7, and 8, and Section 10.

SITE 6 - ABANDONED UNDERGROUND STORAGE TANKS (BOILER PLANT)

BACKGROUND

Two 10,000 to 20,000 gallon waste oil tanks that were used to supply fuel to fire boilers were abandoned in place (possibly full of fuel) in the early 1970's. No records of the abandonment or exact locations of tanks exist. It was speculated that the tanks exist in the current Transportation Equipment Parking area. An operational tank farm occurs to the south of the parking area. Trenching was performed in this area as part of the SI to look for the tanks and collect samples. Two small tanks were discovered during the SI and removed by the Navy in 1991.

It was also speculated that the two abandoned tanks were located across 4th Street, near Building 4 (Boiler Plant). Drawings for an addition to Building 4 indicate that a 10,000 gallon tank was removed and a 20,000 gallon (concrete) tank was incorporated into the foundation. Two borings were completed in the area during the SI.

COMMENTS

Section 6.1.1, page 249. Impact to soils from spills or drips from vehicles in the parking area is possible.

Figure 6.1 should be revised to more clearly show the features discussed.

Section 6.1.2, page 250. What was the volume of the two small tanks? What were the contents? Is the tank removal by the NAS documented in any reports? What was the fate of the soil?

Is it possible that the current, aboveground tank farm was constructed over the area where the abandoned UST's are located?

Section 6.1.3, page 250. If the tanks contained waste oil, metals other than lead, cadmium, and chromium could be a concern.

Section 6.2.1.1, page 251. The locations of grab samples and the two small UST's should be shown on a map. Why were GS0601 and GS0602 collected in the southwest portion of site if the small UST's were in the southeast area? The location of areas containing sand backfill should be identified on the maps.

Section 6.2.1.2, page 252. Figure 6.2 is of poor quality and should be revised to more clearly show features discussed including the suspected locations of the tanks.

Section 6.2.3, page 253. The total depth of the sand backfill should be determined. Logs for the test pits, including PID readings, should be provided. How was fill material distinguished from natural material? At what depth was saturated material encountered?

Section 6.3, page 254. The water found during the trenching probably represents the water table at the site and should be considered ground water regardless of the source. Free water is encountered in the sand backfill because it has a relatively high permeability. The surrounding clay is also saturated. Wells should have been installed at Site 6. It was stated that if sufficient water was encountered, wells would be installed. It is highly likely that the ground water at Site 6 is contaminated.

Section 6.4.1.1, page 254. The rinsate sample should have been analyzed for VOC's regardless of what sample delivery group Site 6 was included.

Section 6.4.1.1, page 255. What was the reproducibility of duplicate samples?

Section 6.4.1.2, page 255. It seems highly unlikely that benzene would not be present in GS0602 when other BTEX compounds were detected at high concentrations.

TED OR LIZ - PLEASE CHECK - ARE IEPA LUST CLEAN UP LEVELS UNIFORM FOR ALL SITES?

Section 6.4.1.2, page 256. The lead levels at GS0602 (147 ppm) and GS0603 (105 ppm) greatly exceed the NAS reference of 10 ppm and indicate lead contamination exists.

The very high phthalate detection for SB060210 indicates poor lab QA/QC.

Section 6.5.2, page 260. Was GS0601 collected in saturated material? If so, this is evidence that ground water contamination exists.

Potential migration along utilities and into building foundations should be considered.

Section 6.6, page 260. The tanks that were the target of the investigation were not found and no solid conclusions are provided as to where they may be located.

Further study is needed at Site 6 to investigate the high BTEX, chlorinated hydrocarbons, lead, PNA's, and semivolatile TIC's in both soil and ground water.

Section 6.7.1, page 261-262. Any future borings should be sampled through the backfill sand into natural materials. Because it is likely that all the backfill is contaminated, the extent of the backfill should be determined. Why will the proposed grab samples be collected from 0.5 to 1 foot? What are locations for proposed borings? The area of suspected contamination should be mapped out based on the SI results before selecting boring locations.

Section 6.7.2, page 262. At least one sample per boring should be collected at the anticipated depth of the base of the tanks.

If it was not possible to locate 4 borings around Building 4 during the SI, how will it be possible to locate 4 additional borings?

SITE 7 - ABANDONED FUEL FARM TANK

BACKGROUND

A 50,000 gallon UST was abandoned in place in 1980 by removing the pump and fuel lines, filling the tank with sand, and covering the tank with soil. The tank was built in 1937, was constructed of concrete (35 feet diameter and 10 feet high), and stored AVGAS and JP-4. Site 7 is directly north of the current fuel farm. No previous study has been performed. Surface water from Site 7 is through the storm water system to SW-07. The objectives were to determine the existence and level of contamination in soils and ground water.

Section 7.1.2, page 284. How deep was the tank buried? Is the current fuel tank farm above or below ground?

Section 7.1.3, page 285. Because of the potential for surface spills in the past, sampling of soils above 6 feet should have been performed.

Section 7.2.1, page 285. Were the wells installed within or offset from the SB borings?

Section 7.2.2, page 286. The location of the tank should be shown on figures. The scale of the figures is too small to allow clear definition of boring locations.

Section 7.2.3.1, page 287. The occurrence of ground water should be discussed and the reason for installing wells should be provided. The logs do not note moisture content or presence of saturated intervals. What was the basis for selecting screen depths?

Section 7.3.1, page 287. Are well screen depths from ground surface? Well recovery rates should be discussed and details on field sampling of ground water should be supplied.

Section 7.3.2, page 288. All water levels are above the top of the well screens. When investigating hydrocarbon releases, the well screens should be placed to straddle the water table.

Section 7.3.3, page 289. A potentiometric map should be supplied. The data do not indicate a northeast gradient. Different gradient directions are indicated by different data sets.

Section 7.4.1, page 289. Cadmium and chromium were analyzed at other sites where fuel contamination was a concern but not at Site 7.

Section 7.4.1.2, page 290-292. Benzene, naphthalene, and carcinogenic PNA's exceed IEPA LUST clean-up levels in some samples.

Tables similar to those on page 291 would be very helpful throughout the report.

Section 7.4.1.3, page 292. The lead at SB0702 (48.2 ppm) appears high and may indicate contamination.

Section 7.4.3.1, page 294. As discussed, the absence of VOC's in ground water samples is inconsistent with the black color and odor noted in water from MW0701 and elevated PID readings while installing MW0703. Did the lab run any spike samples to ensure proper instrument operation?

Section 7.5.2, page 299. Because the ground water flow direction has not be determined, the possibility of migration from the current tank farm is only speculation.

Migration along utility line backfill should be considered.

Section 7.7, page 300. Further study of soil and ground water is warranted at Site 7 as recommended. The ground water flow direction should be confidently established and an additional downgradient well(s) should be installed. Further borings are needed in all directions from SB0701 and SB0702 (not just northwest of SB0701).

SITE 8 - PCB CONTAMINATED SOILS NEAR BUILDING 15

BACKGROUND

A transformer located on a concrete pad leaked oil containing PCB's into surrounding soils. The transformer and concrete pad were removed and replaced and some of the contaminated soil was also removed. The pad was later extended to the north, east, and west. The transformer is in an area with pedestrian traffic. The objective of the SI was to determine the effectiveness of the contaminated soil removal. Angled borings were placed to attempt to recover samples of the soil beneath the area of the original pad.

COMMENTS

Section 8.1.3, page 334. No documentation is provided for the previous pad, transformer, or soil removal. No data are included for previous sampling as indicated in the text. When did removal occur?

The report states that the detection limits for previous samples (2 ppm) may not have been low enough and that concentrations of PCB's less than 2 ppm may still be a concern. However, a clean up objective of 10 ppm is provided in Section 8.3.2. What is the reference for this objective? Are there any applicable, more stringent standards? What was the detection limit for the SI samples?

Sections 8.5 and 8.6, page 338. It is concluded that the angled borings were not able to collect samples directly below the previous concrete pad. Further sampling through the pad is recommended due to detection of Aroclor-1254 at 0.14 to 7.1 ppm. The future sampling is intended to target natural soils below fill material. The study should focus on material that likely contains the highest contamination. This may be the fill material rather than natural soils. Consideration should be given to sampling soils directly below the pad rather than at 3 to 5 feet. Why were proposed boring locations off of pad to east and north chosen?

SECTION 10 - SURFACE WATER AND SEDIMENT SAMPLES

BACKGROUND

Surface water at the NAS is managed by storm sewers, tiles, drainage culverts, and ditches. Water enters the NAS at 5 primary points (SW01 through SW05) and exits the site via two drainage culverts (SW06 and SW07). SW06 is the Oil/Water Detection Basin discussed as Site 5. SW07 is a pond that retains water before discharge offsite. Flow from the site eventually reaches the West Fork of the North Branch of the Chicago River, about 2 miles to the east. The nine sites included in the SI are all close to a surface water management device or structure. Some of the sites had former streams that were filled in or rerouted in the past. The objective of this study was to determine if any of the nine SI sites, other base activities, or offsite sources have impacted surface water or sediment.

COMMENTS

Section 10.1.1, page 370. We do not have a copy of Attachment 1, the NAS Base map. Does the map adequately define surface water control structures and flow patterns.

Section 10.1.3, page 371. How would impact from the nine SI sites be distinguished from impact by other NAS areas and activities? Factors that might influence differences in results from high versus low flow should be discussed. Why weren't influent locations (SW01 through SW05) sampled during low flow? Did they not contain water? VOC's should have been included in the surface water sampling as evidenced by detection of BTEX in sediment at SD05 and SD06.

Section 10.2, page 372. High flow sediment samples were collected on a different date (October 11) than water samples (April 2) because holding times on the original water samples were exceeded. The data would be more diagnostic if these were collected on the same date.

Section 10.2, page 372-373. Each of the nine SI sites that possibly contribute to the surface water sampling locations should be discussed including the contaminants detected at the sites. Other areas with potential contaminant sources contributing flow should be discussed in more detail.

Section 10.3.1, page 374. As discussed, the absence of detection of inorganic parameters in the low flow water samples at SW06 and SW07 is not possible. An error was made.

Section 10.3.2, page 376. The results of the surface water sampling produced no conclusions other than that no trends were identified for high versus low flow and for influent versus effluent.

Section 10.3.3.1, page 377. The extremely high detection of phthalate and consistent detection of methylene chloride and acetone reflect poor lab QA/QC. Data for internal lab blanks should be supplied.

Section 10.3.3.3, page 379. The lead level at SD01 appears high (133 mg/kg) and may indicate lead contamination.

Section 10.3.4, page 380. The greater detection of BTEX in sediment during low flow may be due to seepage of contaminated ground water into the basin (SD06). The basin water and ground water interactions should be defined. The basin water should have been sampled for VOC's.

Application of LUST clean up standards to this study seems inappropriate. Have other standards been considered?

Have any of the UST's been known to contain pesticides?

Section 10.5, page 383. Ground water and surface water interactions need to be defined. How well defined are the drainage areas and drainage divides? Does the NAS have Storm Water Pollution Prevention or Spill Prevention Control and Countermeasurement Plans?

Please call if you have any questions.